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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/534,812	03/24/2000	Shunpei Yamazaki	SEL 169	2789

7590 09/25/2003

COOK ALEX McFARRON MANZO CUMMINGS & MEHLER LTD.
200 West Adams Street Suite 2850
Chicago, IL 60606

EXAMINER

NGUYEN, KEVIN M

ART UNIT	PAPER NUMBER
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2674

DATE MAILED: 09/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/534,812

Applicant(s)

YAMAZAKI

Examiner

Kevin M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5,7,9,11,13,15,19,21,23,25,27,29,51,53 and 55-68 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

- 5) ☐ Claim(s) _____ is/are allowed.

- 6) ☒ Claim(s) 1,3,5,7,9,11,13,15,19,21,23,25,27,29,51,53 and 55-68 is/are rejected.

- 7) ☐ Claim(s) _____ is/are objected to.

- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) ☐ Other: _____

DETAILED ACTION

Request for Continued Examination

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/14/2003 has been entered. An action on the RCE follows:

The rejection of claims 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 51, 53, and 55-68 are maintained.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, 5 and 55-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al (US 6,020,869) in view of Nakai et al (US 6,072,454).
3. As to claims 1 and 55-57, Sasaki et al teach an active matrix liquid crystal display device TFT-LCD (11) associating a method thereof, the device comprising an X-driver 101, Y-driver 201, an opposing substrate and electrode, a gray-level control circuit (331) controls 5-bit input to a 3-bit output, and 2-bit data is used to select by the selection circuit (341) the time ratio gray scale $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$, $\frac{4}{4}$, and $\frac{5}{4}$ (311, 313, 315, 317, 319),

then processing 3-bit data and 2-bit data at the same time that are controlled by the processing circuit (351) (see figure 39, col. 36, lines 23-34, col. 37, lines 40-55, and col. 52, lines 10-11), as satisfying the condition $(m-n) = (5-3)$ bit as information for time ratio gray scale, and $m > n$ ($5 > 3$).

Sasaki et al fail to teach optically compensated mode (OCB mode). However, Nakai et al teach an OCB mode liquid crystal may also use arbitrary, and any type to LCD (col. 16, line 65 through col. 17, line 9). It would have been obvious to a person of ordinary skill in the art at the time of the invention to utilize an OCB mode liquid crystal taught by Nakai et al for Sasaki et al's LCD because this would improve the quality of the image being displayed, while saving power consumption (col. 13, lines 1-6 of Nakai et al).

4. As to claims 3, 5 and 58, Sasaki et al teach a TFT-LCD device (11) associating a method thereof, the device comprising an X-driver 101, Y-driver 201, an opposing substrate and electrode, a gray-level control circuit (331) controls 5-bit input to a 3-bit output, and 2-bit data is used to select by the selection circuit (341) the time ratio gray scale $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$, $\frac{4}{4}$, and $\frac{5}{4}$ (311, 313, 315, 317, 319), then processing 3-bit data and 2-bit data at the same time that are controlled by the processing circuit (351) (see figure 39, col. 36, lines 23-34, col. 37, lines 40-55, and col. 52, lines 10-11), as satisfying the condition $(m-n) = (5-3)$ bit as information for time ratio gray scale, and $m > n$ ($5 > 3$);

forming an image for one frame (F) image comprising 2^{m-n} subframes "four-frame period control (A)" by performing voltage grayscale method and time ration grayscale that use $(m-n)$ bit at the same time, and

applying voltage which makes an orientation of liquid crystal to a bend orientation on starting display of the 2^{m-n} subframe "four-frame period control (A)" (see figures 42 and 43, column 37, lines 30-39).

As to claims 59-64, Sasaki et al teach a TFT-LCD panel (11) which includes a liquid crystal cell C_{LC} (41) on the substrate coupling to an opposing (or counter, common) electrode driving circuit (see figure 39).

5. Claims 19, 21, 23, 25, 27, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al in view of Nakai et al, and further in view of McKechnie et al (US 4,864,390).

As to claims 19, 21, 23, 25, 27 and 29, Sasaki et al and Nakai et al teach all of the claimed limitation of claims 1, 3 and 5, except for "a rear projector and a front projector comprise three liquid crystal display devices. However, McKechnie et al teach three LCDs onto the rear projector and the front projector (see column 5, lines 24-27). It would have been obvious to a person of ordinary skill in the art at the time of the invention to utilize the LCD of Sasaki et al's and Nakai et al's in the rear projector and the front projector of McKechnie et al's because this would be applied to various types of the rear projector and the front projector (col. 3, lines 13-15 of McKechnie et al).

6. Claims 7, 9, 11, 13, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al in view of Nakai et al as applied to claims 1, 3, and 5 above, and further in view of Ishida et al (US 6,069,609).

As to claims 7, 9, 11, 13, 15 and 17, Sasaki et al and Nakai et al teach all of the claimed limitation of claims 1, 3, and 5, except for the positive number m is 10 and 12

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and the positive number n is 2 and 4. However, Ishida et al teach a gray scale circuit having a n bit input data signal and m bit output data signal (figure 26) with $m < n$ (col. 2, line 44). It would have been obvious to a person of ordinary skill in the art at the time of the invention to utilize the n bit input and m bit output taught by Ishida et al for the gray scale circuit 301 of Sasaki in order to assign m is 10 and 12 and n is 2 and 4.

7. Claims 49, 51, 53 and 65-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al in view of Nakai et al as applied to claim 1 above, and further in view of Kusano et al (US 5,677,704).

As to claims 49, 51, 53 and 65-68, Sasaki et al and Nakai et al teach all of the claimed limitations of claims 1, 3 and 5, except for a notebook type personal computer/ a mobile computer. However, Kusano et al teach a liquid crystal display device being applied to the laptop computer 10 (figure 1, col. 5, lines 16-18). It would have been obvious to a person of ordinary skill in the art at the time of the invention to utilize the laptop computer 10 taught by Kusano et al for the LCD of Sasaki et al because a laptop computer 10 including LCD 16 is applicable to the invention.

Response to Arguments

8. Applicant's arguments filed 6/16/2003 have been fully considered but they are not persuasive.

In response to applicant's argument that there is no suggestion to combine the references, at page 8, lines 1-5, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so

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found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Nakai et al teach an OCB mode liquid crystal may also use arbitrary, and any type to LCD (col. 16, line 65 through col. 17, line 9). It would have been obvious to a person of ordinary skill in the art at the time of the invention to utilize an OCB mode liquid crystal taught by Nakai et al for Sasaki et al's LCD because this would improve the quality of the image being displayed, while saving power consumption (col. 13, lines 1-6 of Nakai et al).

In response to applicant's argument that claims 3, 5 and 58 recite "applying a voltage which makes an orientation of liquid crystal to a bend orientation on starting display of the 2^{m-n} subframes," at page 8, lines 6-12. This argument is not persuasive because Sasaki et al's invention teaches applying voltage which makes an orientation of liquid crystal to a bend orientation on starting display of the 2^{m-n} subframe "four-frame period control (A)" (see figures 42 and 43, column 37, lines 30-39).

For these reasons, the rejections based on Sasaki et al and Nakai et al have been maintained.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Kevin M. Nguyen** whose telephone number is **703-305-6209**. The examiner can normally be reached on MON-THU from 9:00-6:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Richard A Hjerpe** can be reached on **703-305-4709**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:


(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered response should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Kevin M. Nguyen
Patent Examiner
Art Unit 2674

KN
September 7, 2003


RICHARD HJERPE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600


KEVIN M. NGUYEN
PATENT EXAMINER
TECHNOLOGY CENTER 2600